AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Original) An apparatus for measuring an optical path length difference, which apparatus is provided with

- optical elements to guide light from a light source through a first and a second path;

- an at least three-way coupler to combine light from the first and the second path with each other in at least three combinations with at least three mutually different added relative phase displacements;

- a detector arranged to measure interference intensities of the at least three combinations;

- a calculation unit arranged to determine, from the intensities, a phase difference between the light from the first and second path while eliminating an effect of a contrast between the light from the first and second path.

2.   (Original) An apparatus according to claim 1, wherein the phase difference is determined so that it is consistent with the formulas

$$I0 = A(1+V \cos (\varphi_1 + 360 * D/\lambda)$$
$$I1 = A(1+V \cos (\varphi_2 + 360 * D/\lambda)$$
$$I2 = A(1+V \cos (\varphi_3 + 360 * D/\lambda)$$

for the intensities I0, I1, I2 of the at least three combinations, wherein the light is combined with relative phase shifts $\varphi_1, \varphi_2, \varphi_3$, in which formulas V represents the contrast, D a path length difference between the first and second path which causes the phase difference, λ a wavelength of the light used and A a function of the average amplitude of the light from the first and second path.

3.   (Currently Amended) An apparatus according to claim 1 ~~or 2~~, wherein the at least three-way coupler combines the light from the first and second path with each other with three different added relative phase displacements, which pairwise differ virtually one hundred and twenty degrees.

4.   (Currently Amended) An apparatus according to ~~any one of the preceding claims~~ claim 1, wherein the at least three-way coupler comprises three mutually coupled wave guides.

5.   (Currently Amended) An apparatus according to ~~any one of the preceding claims~~ claim 1, provided with a path length controller, wherein the calculation unit is coupled to a drive input of the path length controller to control the calculated phase difference in feedback to a desired phase difference.

6.   (Original) A method for measuring an optical path length difference, which method comprises the steps of:
-guiding light from a light source through a first and a second path;
- combining light from the first and the second path in at least three combinations with at least three mutually different added relative phase displacements;
- measuring interference intensities of the at least three combinations;
- calculating a phase difference between the light from the first and second path while eliminating an effect of a contrast between the light from the first and second path.

7.   (Original) A computer program product with instructions to have a computer perform the following steps:

- sampling interference intensities of at least three combinations of light from a first and second light path, wherein the light in the three combinations is combined with at least three mutually different added relative phase displacements;

- calculating a phase difference between the light from the first and the second path while eliminating an effect of a contrast between the light from the first and second path.